

High Altitude Helicopter Tactics on the Modern Battlefield

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The modern battlefield of the Global War on Terrorism has brought new challenges to the conduct of military operations. Like many other aspects of military operations, assault helicopter operations are not immune to those challenges. The guerrilla-style insurgency has become extremely focused on hit-and-run tactics and is continually adapting to the U.S. forces changes in tactics. It is not enough for helicopters to vary routes, but also altitudes flown along those routes, to keep the insurgents guessing. During the daylight hours, low altitude helicopter flights remain a feasible tactic; however due to the lower threat environment, minimal enemy night vision capabilities, and lack of man-made obstacles on the night battlefield, high altitude tactics should be employed for after-dark missions.

#### **Lower Threat Environment**

Based on the doctrinal definition, the current air environment in Iraq is low threat. Low threat is defined as "an air threat environment which permits combat operations and support to proceed without prohibitive interference. Associated tactics and techniques do not normally require extraordinary measures for preplanned or

immediate support.”<sup>1</sup> Though a low threat environment is not permissive everywhere, the environment allows missions to be conducted throughout the battle space with a limited threat. A low-threat environment allows the use of high altitudes for standoff from small arms and eases the command and control required for assault flight operations by increasing line-of-sight communications.<sup>2</sup>

Small arms, medium anti-aircraft weapons with no integrated fire control radar, and man-portable air defense systems (MANPADS) are the primary weapons seen in a lower threat environment.<sup>3</sup> The preponderance of the surface-to-air threat in Iraq is small arms because these weapons are the most widely used and most lethal anti-aircraft weapon to helicopters. Small arms are effective from the ground level to 500 meters, and at times up to 1,500 meters.<sup>4</sup> Because helicopters normally fly at lower altitudes, the relatively short effective range of small arms makes them lethal to the low, slow flying aircraft. Insurgents in Iraq have also been removing the tracers from their weapons to decrease the likelihood of a passing aircraft

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<sup>1</sup> U.S. Marine Corps, Fleet Marine Force, Marine Corps Supplement to the Department of Defense Dictionary of Military and Associated Terms. (Washington, D.C.: GPO, 1998), loose leaf, PCN14400005600, 35.

<sup>2</sup> U.S. Navy, *CH-46E Tactical Manual* (Department of the Navy: GPO, 1997), loose-leaf, NAVAIR A1-H46AE-TAC-000, 17-13.

<sup>3</sup> U.S. Marine Corps, *Marine Corps Warfighting Publication 3-24*, (Washington, D.C.: GPO, 2004), PCN 143 000070 00, 2-3.

<sup>4</sup> *CH-46E Tactical Manual*, 15-8.

determining the point of origin of enemy fire, fostering a false sense of security at times.

Rocket Propelled Grenades (RPG) are also used against low, slow flying aircraft or hovering helicopters. This weapon can be fired from a maximum range of 920 meters utilizing a four or five second self destruct mechanism as a makeshift proximity fuse spraying shrapnel over military installations, or low, slow flying or hovering helicopters.<sup>5</sup> RPGs have scored a few successes against helicopters in Iraq.<sup>6</sup> The RPG is a weapon the former Soviet Union used and the Iraqi security forces are using, therefore these rockets are available throughout the Black Market and Iraq. Without much training, a user can hit a vehicle-sized target most of the time at ranges of 50-100 meters. Additional training enables an operator to engage targets at extended ranges, which also provides relative safety to the user.

Light and medium caliber Anti-aircraft artillery (AAA) is located in small quantities throughout these regions, but the insurgents have been trained minimally on these systems. Light caliber AAA is 20mm to 40mm and medium

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<sup>5</sup> "RPG-7/RPG-7V/RPG-7VR Rocket Propelled Grenade Launcher (Multi Purpose Weapon)," *Defense Update: International Online Defense Magazine*. <<http://www.defense-update.com/products/r/rpg.htm>>

<sup>6</sup> "Countering the RPG Threat," *Defense Update: International Online Defense Magazine*. <<http://www.defense-update.com/features/du-1-04/rpg-threat.htm>>

caliber is 40mm to 75mm.<sup>7</sup> These weapons are easily mounted on trucks or towed behind vehicles and can be easily hidden or moved.

Relatively inexpensive infrared guided, anti-aircraft missiles, known as MANPADS, have made the low altitude battle space an increasingly dangerous place to operate for US and allied forces in recent years.<sup>8</sup> These missiles can be obtained for as little as five hundred dollars on the Black Market, making it easy for any insurgent group to acquire them.<sup>9</sup> The low cost has increased the proliferation of these anti-aircraft weapons, while their small size and easy concealment make MANPADS a significant low altitude threat.<sup>10</sup>

### **Training**

Although one of the hallmarks of Marine Corps training is "training like we fight," many helicopter squadrons are not training to the threat posed by the current conflicts. For example, the majority of training flights are flown in the terrain flight (TERF) environment, at or below two hundred feet. While TERF should be used in a medium or

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<sup>7</sup> Aviation Statistics of WWII. 2002. <<http://www.tsj.net/avstats/aaa.html>>

<sup>8</sup> Honorable Jim Gibbons, "Reclaiming the Low Altitude Battlespace: Special Materials and COMET," *Electronic Warfare Working Group*. (Washington, D.C., July 2002) <<http://www.house.gov/pitts/initiatives/ew/Library/Briefs/brief14.htm>>

<sup>9</sup> Nick Patton-Walsh, "Black market missiles raise terror fears," *Guardian Unlimited Network*. (Moscow: August 13, 2003) <<http://www.guardian.co.uk/russia/article/0,2763,1017619,00.html>>

<sup>10</sup> "Reclaiming the Low Altitude Battlespace: Special Materials and COMET," July 2002.

high threat environment, the current battlefields are low threat and require training in a different environment. In order to train for the current low threat environment, low altitude flight training should be used for daytime flight, but helicopter pilots must also train for the higher altitude flying required to counter the threat at night.

Helicopters traditionally operate at low level to increase the difficulty an observer has acquiring an aircraft. Because flying at these lower altitudes requires regular and realistic practice, the majority of helicopter training typically occurs at very low altitudes.<sup>11</sup> However, given the current operating environment, it is evident that additional high altitude training is required. Though flying from one point to another at higher altitudes is not a difficult skill, the take-off and landing transitions require more practice to effectively execute and remain tactically sound.

In order to ensure mission accomplishment in the current operational environment, helicopter squadrons need to practice high altitude, low threat maneuvers similar to the tactics used in Vietnam. Though flying at higher altitudes does not take more skill or practice than low

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<sup>11</sup> "Low Flying: the military requirement," Ministry of Defence. (London: 9 Aug 2005)  
<<http://www.mod.uk/issues/lowflying/require.htm>>

altitude flying, low threat approaches into landing zones require additional practice to effectively execute. However, many squadrons are not practicing these approaches and most training is still focused on TERF, making many pilots reluctant to climb out of the TERF environment in a threat environment. Surprise is a key principle of maneuver warfare, and aviation must also adhere to these principles. If squadrons trained to higher altitude tactics, this would allow more options and the enemy would not be able to anticipate that all aircraft flying through an area will be flying low. Aircraft that have used these tactics in Iraq have noticed a considerable decrease in the number of surface to air fire events.

### **Night Operations**

The enemy knows that the United States' night fighting capabilities are superior and, therefore, the enemy will often choose to fight during the day instead of at night.<sup>12</sup> The ability of the enemy to acquire coalition helicopters is extremely limited at night because the insurgents in Iraq either have little or no organic night systems associated with the weapon systems they are employing. Additionally, any of the night systems the insurgents do

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<sup>12</sup> Roxana Tiron, "Pilots Spurring Training, Tactics Revolution" National Defense. (June 2004)  
<<http://www.nationaldefensemagazine.org/issues/2004/Jun/Pilots.htm>>



have are acquired through the Black Market, leading to little or no training on these devices.

An aircraft flying at a higher altitude, for instance above one thousand feet above ground level (AGL), will be more difficultly acquired by a novice night vision goggle user than an aircraft at three hundred or five hundred feet AGL would be acquired. Night vision requires a dedicated scan and peripheral vision to be effective, and new users will not be as effective at acquiring aircraft because of their lack of training using night vision devices.

On a high light level night (greater than .0022 lux) or a low light level night (less than .0022 lux), an aircraft at low level can be acquired with the naked eye. Standing on a flight line while an aircraft flies by at 300 feet, an observer will easily acquire at least the movement of the aircraft if not the entire outline. The first cue for an observer would be the audible sound of the aircraft. This cuts the location of an aircraft down to a specific sector of the sky. If an aircraft climbed five hundred or one thousand feet AGL, the likelihood of an observer finding the aircraft with the naked eye is extremely limited, but the section of the sky would still be apparent. As the aircraft continued to climb, the

probability of being visually acquired decreases, even on a night with a full moon.

### **Man-made Threat**

Another significant threat to helicopters in Iraq is man-made obstacles. Most high tension power lines throughout the world are located at heights of 200 feet and below. At TERF altitudes, the probability of an aircraft impacting these lines or the associated poles is greatly increased. In the evening, the probability is further increased. Flying at higher altitudes allows helicopters to avoid man-made obstacles such as lit and unlit towers, power lines, and tethered balloons. More US helicopters have flown into man-made obstacles during operations in Iraq than have been shot down by enemy fire.<sup>13</sup> Higher altitudes take these threats away and allow pilots to focus more on the mission at hand and not at the location of power lines that are below their altitude.

### **Conclusion**

Helicopters on the modern battlefield typically fly at lower altitudes. While this tactic is a viable option on the current battlefield in Iraq during the day, at night helicopters should fly at higher altitudes to make flight

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<sup>13</sup> "Helicopter shot down near Baghdad," *BBC News*. (April 21, 2005)  
<[http://news.bbc.co.uk/2/hi/middle\\_east/4468959.stm](http://news.bbc.co.uk/2/hi/middle_east/4468959.stm)>

patterns less predictable. Higher altitudes should be used to avoid detection by enemy fighters. Operating predominantly at night at higher altitudes will decrease the ability of an adversary with limited night vision capabilities to acquire and engage our slow flying aircraft. Flying at higher altitudes will also avoid man-made objects, allowing the aircrew to focus on the human threat and not the man-made threat.

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